

# Candidate 7 evidence

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1)	Nylon bearings are self lubricating,
a)	meaning the parts can move smoothly
	Rubber handles <del>have</del> are non
	slip, meaning it will provide
	excellent grip.
	Mild steel frame is strong, meaning
	it can hold the weight of the
	user without breaking.
	ABS seat is chemical resistant,
	meaning it can be cleaned
	easily.
	Stainless steel frame is corrosion
	resistant, meaning it will not
	rust <del>when it is left at</del> when it
	comes in contact with rain.
	Polypropylene seat is durable,
	meaning it will be long lasting
	and will not have a short life
	span

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1b	
Extrusion can be used for the stainless steel frame <del>as a</del> on playground sand digger as a continuous cross section is created.	
Injection moulding could be used for the ABS seat on playground sand digger as it is repeatable, meaning the mould can be used more than once for the production of lots of them.	
Piercing and blanking could be used <del>to</del> on both diggers to create accurate holes for fittings and the material is in thin sections.	
c)	
Anthropometrics	
The diameter of the handle on both diggers will have been designed to allow an average child's hand diameter to fit comfortably around it.	

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The seat width will have	
been designed with average child's	
hip width being considered so the	
<sup>average</sup> <del>any</del> child can fit onto the chair	
without it being too small.	
The height of the seats on both	
will have been designed with	
average knee to foot ankle height,	
so that when children are in	
sit in a seated position, they	
will not be too high up which	
could make it hard to get on	
and off.	
The distance of handles from seat	
on playground digger would've been	
designed with average child's <del>hand</del> arm	
length, meaning they would be able	
to reach handles easily.	
<u>Physiology</u>	
The amount of strength required	
to push the handles on each	
digger would have been	

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	considered, as if it is too heavy then most children won't be able to use it.
	<del>If</del> The weight of the product would have been considered, as <del>the</del> the garden digger should be light enough for child to move it places.
	d) The play ground sand digger is built into ground, meaning it is stable and won't fall making it safe.
	There is a grip on handle of
	Garden digger, allowing child to hold on tight and not <del>slip</del>
	let their hands slip. making it safe.
	Play ground digger can move
	360°, allowing child to
	obtain sand from different areas

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The claw part of Garden digger is extendable, meaning it can fold slightly, allowing ease of storage.

And there is wheels on the garden digger allowing the child to ride it as well as scoop things, so has a secondary function.

e) Just in time production could be used, it allows stock to be arrive just in time for production, meaning there is no expensive warehousing costs and supplies can be used as soon as they arrive.

CAD, can be used meaning the design can be produced on the computer, meaning it can be edited easily and orthographic drawings can be produced.



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2a)	Thermosetting plastic is suitable because they are heat resistant, meaning they won't melt easily and they are chemical resistant, which allows them to be cleaned without harming material.
b)	Compression moulding is suitable as it is accurate, meaning the product can be produced the same every time. And it is repeatable meaning the mould can be used more than once, improving efficiency.
c)	Mood boards can be used, this is when the designer researches lots of pictures and creates a collage on paper. They can pick out different aspects of each picture to include in design. Biomimicry could have been used, it's a form of <del>ontology</del> analogy where nature is used as

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inspiration. For example a leaf could be used, and the designer could be inspired by its shape and incorporate it into design.	
3a) Benefits of using standard components are they can be bought in bulk, meaning they can be cheap due to the discounts of buying in a large quantity. And they <del>are</del> do <del>not</del> not require skilled employees to fit, saving costs on staff training.	
b) The benefits of using CAD is that the design can be rotated, so it can be viewed at different angles when designing. It also allows changes to be made as it can be edited easily by deleting aspects of design.	



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c)	And CAD allows orthographic drawings to be produced, meaning there will be accurate drawings to use during the manufacturing process.
d)	The impact of fully automated production methods on society is that it means there is a less need for skilled employees, which means there will be less job availability which can affect people's financial situation. And it <del>has</del> has an environmental impact because using many production methods can harm the environment as it's not a 'green' processes.

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	in consideration	
	And there is a decrease in costs because there is not a need for multiple employees to be present for this process as it's simple to set up.	
	b) A questionnaire could be carried out, questions can be asked to target market and they will provide feedback. This can help identify their wants and needs for the product.	
	Comparison of existing products could be carried out, they could look at what is commonly used features by competitors and then incorporate that into their design.	
	A focus group could be held, this is when a group of people in the target market come together, they could express their opinions on existing	



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type of production method  
(job/batch/flow).

S)a - The kettle is bright in colour which makes it eye catching to the user.

- The lid is shiny which makes it look luxury due to it looking polished and smooth

- There is contrast created between the bright coloured body and dark, dull base, making it look interesting

- The shape of kettle has many curves and is not just a solid straight product which makes it aesthetically pleasing to the eye.



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Market Researchers conduct market research to identify consumers wants and needs. They could conduct a questionnaire, which is asking people questions & they provide feedback. This information can be used to identify the target market. They can pass this on to the designer so a suitable product is produced.

Project managers oversee the whole of the production process. They ensure each member of the design team is doing their job properly, such as that the designer is producing a range of suitable ideas to present to client. They work close with retailer to ensure the product they produce is going to be economically viable.

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7a)	<p>A flame test could be used, the smell produced by the material to determine if a plastic is a thermoplastic or thermosetting as the smell produced by the material when burned is specific to each one.</p>	
	<p>Comparison of other products materials could be used, this is when different materials are compared such as mahogany having a dark colour compared to beech being lighter in colour. Metals could be submerged in water, a corrosion resistant material like stainless steel would not rust, whereas a material like mild steel would, so it's easy to differ the two.</p>	
	<p>A bend test could be produced, conducted, for a plastic like polypropylene would not bend whereas <del>ABS</del> polystyrene would, making each one identifiable.</p>	

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ii)	<p><del>Ribs</del> Ribs are used to maintain part strength, without increasing the overall wall thickness.</p> <p>Bosses provide a space for bolts to fit into, ensuring efficient assembly and they also add part strength to bolt.</p> <p>Piercing creates accurate holes, allowing standard components to fit easily in.</p>
b)	<p>Manufacturers could reduce the production methods that are used in production, meaning less fumes are produced.</p> <p>They could produce products out of materials that can be recycled, meaning they can be used for another purpose later on.</p> <p>They could improve the products life span, meaning it won't break easily and have to get replaced frequently.</p> <p>They could limit the packaging</p>



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used on products as sometimes it is not recyclable. And could manufacture products close to customers, limiting transportation.

8) Sketch Models can be used during initial design of product, they are quick to produce and are simplistic, allowing numerous ideas to be produced. ~~and~~ <sup>so</sup> that the designer won't be limited during the development stage.

Block models could be used during development. They have no internal details and are used to test ergonomics. For example they could ensure average ~~the~~ hand diameter of user was considered when designing the handle diameter of product. 3D Computer models could also be used at the development stage as they produce a realistic image of

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	<p>product. It can be edited so changes can be made easily, and rotated, so viewed from different angles.</p>
	<p>Prototypes could be used when presenting to clients. They can be made out of the material the end product is going to be made of, which gives <del>designer</del><sup>client</sup> an idea of the end product's aesthetics and sizes.</p>
	<p>Test models can also be used. During development, a range of tests can be performed on model to ensure that it is safe and works well to the function of the product.</p>
	<p>2c) Additional Answer ↓</p>
	<p>• Brainstorming could be used, this is when <del>use</del> a design team shouts out ideas and someone writes them down. It can help</p>

